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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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|-----------------|-------------|----------------------|---------------------|------------------|

09/600,145

07/10/2000

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9319S-000137

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11/16/2005

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EXAMINER

DUONG, THOI V

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/600,145

Applicant(s)

NAKAHARA ET AL.

Examiner

Thoi V. Duong

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,4,6 and 17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,6 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to the Amendment filed July 18, 2005.

Accordingly, claims 1 and 4 were amended, and claims 2, 5 and 7-16 were cancelled. Currently, claims 1, 3, 4, 6 and 17 are pending in this application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 56-20927 (JP'927) in view of Burrell et al. (Burrell, USPN 5,680,192) and Hayakawa et al. (Hayakawa, USPN 6,172,732 B1).

Re claim 1, as shown in Figs. 1a and 1b, JP'927 discloses a display apparatus, comprising:

a first substrate 5 having:

a plurality of first substrate terminal 7 located adjacent to and aligned along a center portion of a first edge (front edge) of said first substrate 5 and extending linearly toward a second edge (back edge) of said first substrate opposing said first edge (Fig. 1a); and

a first electrode pattern 6 electrically connected to said first substrate terminals 7;

a second substrate 1 having:

a plurality of first input terminal 9 located adjacent to and aligned along a first edge (front edge) of said second substrate 1 and extending in a direction from the first edge and linearly toward a second edge (back edge) of said second substrate 1 opposing said first edge of said second substrate 1 (Fig. 1a);

a plurality of second substrate terminals 8 electrically connected to said first input terminals 9 and extending linearly toward the second edge of said second substrate 1 (Fig. 3a);

a plurality of second input terminals 4 located adjacent to and aligned along said first edge of said first substrate 5 and extending linearly toward said second edge of said second substrate 1, the second input terminals 4 having a first portion flanking one side of said first input terminal 9 and a second portion flanking another side of said first input terminal 9; and

a second electrode pattern 2 including a plurality of lines each electrically connected to a corresponding one of said second input terminals 4; and

a sealing member 10 adhering the first and second substrates 5 and 1 to each other;

wherein said first substrate 5 and said second substrate 1 are located in an opposed manner through said sealing member so that the first substrate terminals 7 and said second substrate terminal 8 overlap each other as viewed in plan (Fig. 1b);

wherein said first substrate terminal 7 and said second substrate terminal 8 are electrically connected to each other with a conductive material 13 between said first and second portions of said second input terminal 4 (or extending in a direction from said

second substrate 1 to said first substrate 5 which is substantially perpendicular to the direction in which the first input terminals 9 extend); accordingly, said electrical conduction of said first and second substrate terminals is performed at said central portion (or said electrical connection is between portions of said second electrode pattern 2 flanking said second substrate terminal 8) (see Fig. 1a); and

wherein said first substrate terminal 7 for conduction between substrates and said second substrate terminal 8 for conduction between substrates linearly extend toward said second edges of said first and second substrates.

JP'927 discloses a display apparatus that is basically the same as that recited in claim 4 except for a liquid crystal that fills the liquid crystal sealing area and a sealing member having a conductive material and the formation of the lines of the second electrode pattern 2.

As shown in Figs. 1-3, Burrell discloses a liquid-crystal display apparatus comprising a first substrate 20, a second substrate 22, a sealing member having a conductive material and a liquid crystal material (col. 4, lines 39-48), the sealing member adhering the first and second substrates to each other and defining a liquid-crystal sealing area 24, wherein terminals 134 (transverse seal connectors) of the first substrate 20 and terminals 42 (contact pads) of the second substrate 22 are electrically connected to each other via the conductive material in a conductive area 40 (col. 4, lines 39-48 and col. 5, lines 15-23).

Burrell also discloses a first electrode pattern 16 formed on the first substrate 20 and a second electrode pattern 18 formed on the second substrate 22,

wherein, re claim 3, image data is supplied to said first electrode pattern 16, and a scanning signal is supplied to said second electrode pattern 18 since these electrode patterns are driven with opposite polarity voltages (col. 4, lines 48-60).

As shown in Fig. 3, the lines of the second electrode pattern 18 within the liquid-crystal sealing area each includes:

a first linear portion (extending from the terminal 42 at left) that extends linearly from where the line is electrically connected to the corresponding input terminal 138, the first linear portion of each line extending for a different length than the first linear portion of other lines of the second electrode pattern 18;

an oblique portion 106 that slants obliquely from the first linear portion, a spacing between the lines of the second electrode pattern being narrower at the oblique portions than at the first linear portions,

a second linear portion 104 that extends linearly from the oblique portion toward the second edge of the second substrate 22; and

a second-edge parallel portion 102 that extends from the second linear portion parallel with the second edge of the second substrate.

Re claim 17, as shown in Fig. 3, Burrell discloses that:

the terminals 42 extend in a direction from the left edge of the second substrate 22;

the conductive material extends along the conductive area 40 in a direction substantially perpendicular to the direction in which the terminals 43 extend; and

the boundary between the first linear portion and the oblique portion 106 is located lateral to the conductive material in the direction in which the conductive material extends in the contact area 40 of the sealing area 24;

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the display apparatus of JP'927 with the teaching of Burrell by providing a liquid crystal and a proper configuration for the lines of the electrode pattern to maximize the viewing area and avoid crossover black dots (col. 3, lines 1-6 and 30-35).

However, the oblique portion 106 of Burrell does not overlap an extension of the conductive area 40 in the sealing member 24.

As shown in Fig. 1, Hayakawa discloses a liquid crystal device comprising input electrodes having a first linear portion 41-1 to 41-10 and an oblique portion 45-1 to 45-10 that overlaps a sealing material 44.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the liquid-crystal display apparatus of JP'927 with the teaching of Hayakawa by forming the oblique portion of the lines of the second electrode pattern at a position that overlaps with the seal member having a conductive area for optimizing the area occupation ratio of each wiring below a seal portion to suit a display with a narrow frame (col. 3, lines 40-45).

4. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 56-20927 (JP'927) in view of Burrell et al. (Burrell, USPN 5,680,192) and Hayakawa

et al. (Hayakawa, USPN 6,172,732 B1) as applied to claims 1, 3 and 17 above and further in view of Kobayashi (USPN 5,959,713) and JP 06-075240 A (JP'240).

The liquid-crystal apparatus of JP'927 as modified in view of Burrell and Hayakawa above includes all that is recited in claims 4 and 6 except for a driving IC.

As shown in Figs. 3 and 4, Kobayashi discloses a first substrate terminal 8 and a first electrode pattern formed on a first substrate 1; and a first input terminal 12, a second electrode pattern 7a and a second substrate terminal 21 formed on a second substrate 2,

wherein a driving IC 13 is mounted on the second substrate, said driving IC has an input terminal electrically connected to said first input terminal, and an output terminal 11 electrically connected to said second terminal for conduction between substrates and said second electrode pattern; and

wherein image data is supplied to said first electrode pattern, and a scanning signal is supplied to said second electrode pattern (col. 6, lines 36-46).

According to JP'240, due to increasing the density of the liquid crystal element, driving ICs are used in a so-called COG technology to improve the complicated wiring in the display (Abstract).

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the liquid-crystal display apparatus of JP'927 with the teaching of Kobayashi and JP'240 by employing a driving IC to improve the wiring of the display and hence, to reduce in size and weight of the display (Abstract).

Response to Arguments

5. Applicant's arguments filed July 18, 2005 have been fully considered but they are not persuasive.

Applicant argued that the oblique portion of Burrell in Fig. 3 does not overlap any portion of the conductive area in the sealing area since the common contacts pads 42 and the segment contact pads 44 extend linearly and Hayakawa does not disclose conduction between the substrates. The Examiner recognizes that the oblique portion of Burrell does not overlap the conductive area where sealing material is located; however, Hayakawa is employed for teaching terminal electrodes 41-1 to 41-10 linearly extending from oblique electrodes 45-1 to 45-10 which overlap a sealing material 44 for optimizing the area occupation ratio of each wiring below a sealing material as shown in Fig. 1 (col. 3, lines 40-50). Although Hayakawa does not disclose a conductive area formed in the sealing material, there's no reason why the teaching of Hayakawa cannot be applied to the wirings of Burrell for wiring efficiency. Accordingly, it would have been obvious to modify the display of JP'927 with the teachings of Burrell and Hayakawa to arrive at the claimed invention.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thoi V. Duong whose telephone number is (571) 272-2292. The examiner can normally be reached on Monday-Friday from 8:30 am to 4:30 pm.


Art Unit: 2871

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached at (571) 272-2293.

Thoi Duong



11/04/2005



ANDREW SCHECHTER
PRIMARY EXAMINER